

Serial Number: 09/389,085

REMARKS

Favorable reconsideration of this application as presently amended is respectfully requested. Claims 1, 2, 6-7, 10, 12-15, 19-20 and 28-29 are pending. Claims 4, 5, 9 and 18 are canceled, claims 1 and 14 are amended and claims 28-29 are added.

The Examiner is thanked for indicating that claims 4, 5, 9 and 18 would be allowable if rewritten in independent format including all of the limitations of the base claim and any intervening claims, in order to overcome the objection of their being dependent upon a rejected base claim.

Claims 1 and 14 have been amended to incorporate the allowable subject matter of claims 4 and 18 respectively.

Allowable claim 5 has been rewritten in independent format as claim 28.

Allowable claim 9 has been rewritten in independent format as claim 29.

Claims 1-2, 4-10 and 12-13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This rejection is obviated by the amendments to the claims. In particular, the objectionable language "in such a manner as" has been deleted from claim 1.

Claims 1-2, 6-7 and 14-15 are rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,588,065 to Tanaka *et al.* This rejection has been obviated by the amendments to the claims.

Claims 12 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,588,065 to Tanaka *et al.* in view of U.S. Patent No. 5,693,917

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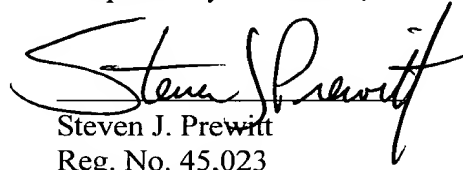
to Bertagni *et al.* This rejection has been obviated by the amendments to the claims.

Claims 13 and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,588,065 to Tanaka *et al.* This rejection has been obviated by the amendments to the claims.

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,588,065 to Tanaka *et al.* in view of U.S. Patent No. 5,812,686 to Hobelsberger *et al.* This rejection has been obviated by the amendments to the claims.

If the Examiner has any questions or concerns regarding the present response, the Examiner is invited to contact Steven J. Prewitt at 703-591-2664. In view of the foregoing, it is respectfully submitted that this application is in condition for allowance, and favorable action is respectfully solicited.

Respectfully submitted,


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June 19, 2003



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	
)	
MULLINS, Joe H.)	Examiner: GRIER, Laura A.
)	
Serial Number: 09/389,085)	Art Unit: 2644
)	
Filed: September 2, 1999)	
)	
For: LOW FREQUENCY FEEDBACK)	Docket No.: UNME-0019-1
CONTROLLED AUDIO SYSTEM)	

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

VERSION WITH MARKINGS TO SHOW CHANGES MADE

Sir:

Below are the amendments in the accompanying Amendment for the above-identified application shown in redlined format:

IN THE CLAIMS

Please cancel claims 4, 5, 9 and 18 without prejudice or disclaimer.

Please amend the claims, without prejudice or disclaimer, as indicated below:

1. (~~Thrice Four Times Amended~~) An audio system, comprising:
 - a cabinet having an opening in a first wall thereof;
 - a first speaker for emitting audio output, said first speaker being mounted inversely at said opening of said cabinet;
 - a passive radiator for emitting audio output, said passive radiator mounted in said cabinet opposite said first speaker; and
 - a sensor for sensing pressure caused by the audio output from said first speaker, said sensor being mounted in said cabinet by a sensor mounting structure

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joined to said cabinet, ~~wherein said sensor mounting structure comprises a damped elastic mounting structure~~, said sensor mounted in ~~such a manner as to~~ receive a signal from both the speaker and the passive radiator, wherein said sensor is a speaker and wherein said sensor has a signal-to-noise ratio of at least 100 dB.

2. The audio system of claim 1, wherein said audio system comprises a low frequency audio system.

6. The audio system of claim 1, further comprising a means for adjusting the audio output of said first speaker based on said pressure sensed by said sensor.

7. The audio system of claim 1, wherein said first speaker has a speaker maximum width and said sensor has a sensor maximum width, and said sensor maximum width is smaller than said speaker maximum width.

10. The audio system of claim 1, further comprising acoustic absorbing material contained in said cabinet.

12. The audio system of claim 1, wherein said first speaker comprises an electrodynamic planar speaker.

13. The audio system of claim 1, wherein said first speaker comprises an electrostatic planar speaker.

Now 14. (~~Thrice Four Times Amended~~) A method for improving acoustical accuracy in an audio system comprising the steps of:

mounting a first speaker inversely in an opening of a wall of a cabinet;
mounting a passive radiator in said cabinet opposite said first speaker;
sensing pressure from audio output from the first speaker and the passive radiator; and
adjusting the audio output from the first speaker based on the pressure sensed

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in said sensing step, wherein said sensing step is performed by a sensor comprising a speaker and wherein said sensor has a signal-to-noise ratio of at least 100 dB, and wherein said method produces an audio system feedback factor of 30 to 50 dB when the first speaker operates at a frequency of about 15 to 300 Hz.

15. The method of claim 14, wherein the audio system comprises a low frequency audio system.

19. The method of claim 14, wherein said first speaker comprises an electrodynamic planar speaker.

20. The method of claim 14, wherein said first speaker comprises an electrostatic planar speaker.

Please add new claims 28-29 as follow:

28. An audio system, comprising:
a cabinet having an opening in a first wall thereof;
a first speaker for emitting audio output, said first speaker being mounted inversely at said opening of said cabinet;
a passive radiator for emitting audio output, said passive radiator mounted in said cabinet opposite said first speaker; and
a sensor for sensing pressure caused by the audio output from said first speaker, said sensor being mounted in said cabinet by a sensor mounting structure joined to said cabinet, wherein said sensor mounting structure comprises an enclosure mounted on said first wall and including said opening in said first wall, said sensor mounted to receive a signal from both the speaker and the passive radiator, wherein said sensor is a speaker and wherein said sensor has a signal-to-noise ratio of at least 100 dB.

allow
29. An audio system, comprising:

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a cabinet having an opening in a first wall thereof;

a first speaker for emitting audio output, said first speaker being mounted inversely at said opening of said cabinet;

a passive radiator for emitting audio output, said passive radiator mounted in said cabinet opposite said first speaker; and

a sensor for sensing pressure caused by the audio output from said first speaker, said sensor being mounted in said cabinet by a sensor mounting structure joined to said cabinet, said sensor mounted to receive a signal from both the speaker and the passive radiator, wherein said sensor is a speaker and wherein said sensor has a signal-to-noise ratio of at least 100 dB, and wherein said audio system has a feedback factor of 30 to 50 dB when said first speaker operates at a frequency of about 15 to 300 Hz.